Joint Warfighting Operational Problems

- **In OEF, ground warfighters did not have the capability to geolocate targets.**
  - **Results: targets missed.**
- **Few tools to perform environmental studies and categorize and identify threats prior and during operations.**
  - **Result: Increased risk to the warfighter/opportunities to identify high priority targets missed.**
- **Limited reachback comms.**
  - **Result: No connection to access linguists, assets that could process advanced signals, access to theater assets, etc.**
- **Limited advanced SIGINT.**
  - **Targets missed and increased risk to warfighter.**
- **Other limitations: RF environment domination, attack adversary C3ISR networks, counter-sensors/mine/weapons.**

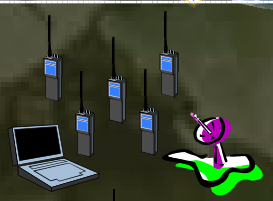
Ground Forces RF Challenges

- Long duration missions
- Simple situation display
- Complex RF environment
  - Modern & legacy Comms
  - huge variation in signals
  - Multi-path and signal loss due to buildings, terrain and foliage
- Large variation in user skill
- Large user variety and number
- High EMI due to proximity to interference and jammers
- Severe power, size and weight restrictions.

Joint Warfighting Technical Problems

- **Lack a scaleable family of system modules ("a toolbox") that can be easily configured to the warfighter's given mission:**
  - **Detect, geolocate, monitor, and relay Signals of Interest (SOI).**
  - **Receive, correlate, and display real time tactical threat information.**
  - **Perform selective electronic attack / jamming**
  - **Disable adversary sensors and devices**
  - **Transceive w/ other sensors.**
  - **Detect threats such as biological, chemical, WMD, etc.**
- **Existing off the shelf capabilities and developmental systems:**
  - **Boxes only do one or two functions; user must carry multiple boxes for multiple missions.**
  - **No standard for industry to design enhancements *(the MANPACK ACTD will develop one).***
  - **Lack required size, weight and power.**
  - **Require major redesigns to upgrade.**
  - **Not joint solutions (interoperable or interchangeable).**
- **Technology is moving too fast to "go it alone."**

Joint Threat Warning System Variants



Maritime | Air | FOB (Team) | On-The-Move/Ground (Body-Worn & Manpack) | Unattended Ground Sensor

SOF OPERATIONAL CONTINUUM

- Reachback/ Forward Comms
- Situational Awareness
- Threat warning
- Direction Finding
- IBS
- Electronic Warfare
- C2/C4I
- *NTIO*

Situational Awareness
Threat Warning
Direction Finding
IBS

NTIO

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Situational Awareness
Threat Warning
Direction Finding
IBS
C2

Situational Awareness
Threat Warning
Direction Finding
EW/Acoustic/Seismic/Magnetic/IR sensors
C2 (Remote)

Common Interface Standards (e.g., as defined in JTSA/JTA)

SBIRs/ACTD are building

Concept of Operations

Nat'l/Airborne Collaboration/Relay

UAV

Forward SOF

Wideband reachback
Threat Information

USMC

Coalition

USA

Headquarters or portable SCIF

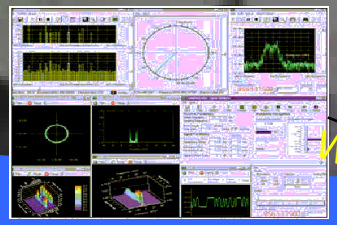
PATENHAMMER

Unattended Sensors

Scaleable Team Transportable

Ground Core Technologies

Microbatteries
Innovative Vest Technologies
small DF Unit
Wireless Displays
Advanced Signal Detection
Signal ID Training (benefit)
Radar Technologies
Camouflage antenna/tent



Automated Threat Warning Software (TRL6)

PlugNPlay Scaleable Architecture(TRL5)

Miniature, low power SIGINT receivers(TRL7)

LPI/D Plug and Play Comms(TRL

Wideband omni-directional and DF(TRL6) Body worn Antenna

Emitter/Enemy Geolocation(TRL6)

Networked Sensors(TRL6)

Team Transportable

Competitive announcement ~May 1

Transformation Request

For use in:
Permanent or Portable
Command Center
HMMV
Portable SCIF

Satcom

TT Scaleable Architecture

Threat Information Updated Imagery
Linguist Advanced Signal Assistance
Geol ation JTRS Compatible Xc

Threat Information Secure Comms
JTRS compatible Xcvr
Request for: Linguist, Geolocation, Advanced Signals, Updated Imag y.

Local Antenna

Sensors

Remoted Systems:
PATENHAMMER